

Serial No. 09/667,460
2154

- 2 -

Art Unit:

In the Claims:

Please amend the claims as indicated below:

1. (currently amended) A management information base for configuring a domain-specific source address filter, the management information base comprising:

at least one management object defining a number of addresses for detecting packets requiring domain-specific network address translation; and

a management object defining a domain for said number of addresses; and

wherein the management information base is operable to map a given local source address to a different one of a plurality of global addresses for each corresponding one of a plurality of destination address domains.

2. (original) The management information base of claim 1, wherein the at least one management object comprises:

a first management object defining a beginning address for a range of addresses; and

a second management object defining a prefix length indicating a number of contiguous bits in an address mask.

3. (original) The management information base of claim 1, wherein the at least one management object comprises:

a first management object defining a beginning address for a range of addresses; and

a second management object defining an ending address for the range of addresses.

Serial No. 09/667,460
2154

- 3 -

Art Unit:

4. (original) The management information base of claim 1, wherein the at least one management object comprises:

a first management object defining a beginning address for a range of addresses; and
a second management object defining an address range size indicating a number of addresses in the range of addresses.

5. (original) The management information base of claim 1, wherein the at least one management object comprises:

a management object for including an individual address in the number of addresses.

6. (original) The management information base of claim 1, further comprising:

a management object defining a domain-specific translation pool for translating said packets requiring domain-specific network address translation.

7. (original) The management information base of claim 6, wherein the domain-specific translation pool is associated with one of an inbound domain and an outbound domain, and wherein the management object defining the domain-specific translation pool indicates one of an inbound domain translation pool and an outbound domain translation pool.

8. (currently amended) A management information base for configuring a domain-specific translation pool, the management information base comprising:

at least one management object defining a number of addresses in the domain-specific translation pool; and

a management object defining a domain for said number of addresses; and

wherein the management information base is operable to map a given local source address to a different one of a plurality of global addresses for each corresponding one of a plurality of destination address domains.

Serial No. 09/667,460
2154

- 4 -

Art Unit:

9. (original) The management information base of claim 8, wherein the at least one management object comprises:

- a first management object defining a beginning address for a range of addresses; and
- a second management object defining a prefix length indicating a number of contiguous bits in an address mask.

10. (original) The management information base of claim 8, wherein the at least one management object comprises:

- a first management object defining a beginning address for a range of addresses; and
- a second management object defining an ending address for the range of addresses.

11. (original) The management information base of claim 8, wherein the at least one management object comprises:

- a first management object defining a beginning address for a range of addresses; and
- a second management object defining an address range size indicating a number of addresses in the range of addresses.

12. (original) The management information base of claim 8, wherein the at least one management object comprises:

- a management object for including an individual address in the number of addresses.

13. (original) A management information base for configuring address ranges in a multi-domain network address translator, the management information base comprising:

- a management object (wfNatAddressRangeDelete) to create or delete a table entry;
- a management object (wfNatAddressRangeDisable) to enable or disable the table entry;
- a management object (wfNatAddressRangeAddress) indicating a beginning address for the address range;
- a management object (wfNatAddressRangePrefixLen) indicating a prefix length;

Serial No. 09/667,460
2154

- 5 -

Art Unit:

a management object (wfNatAddressRangeIndex) indicating a unique value (index) for the table entry;

a management object (wfNatAddressRangeNto1Addr) indicating an N-to-1 translation address for a source address filter;

a management object (wfNatAddressRangeType) indicating an address range type equal to one of source address filter, translation pool, domain-specific source address filter, and domain-specific translation pool;

a management object (wfNatAddressRangeDomain) indicating an address domain for the address range if the address range type (i.e., wfNatAddressRangeType) is one of domain-specific source address filter and domain-specific translation pool;

a management object (wfNatAddressRangeTransPool) indicating a domain-specific translation pool for the address range if the address range type (i.e., wfNatAddressRangeType) is domain-specific source address filter;

a management object (wfNatAddressRangeStaticNextHop) indicating an address of a next hop for the address range; and

a management object (wfNatAddressRangeUnnumCct) indicating whether the address range is associated with an unnumbered interface.

14. (currently amended) An apparatus for multi-domain network address translation, the apparatus comprising:

a management agent; and

a management information bases accessible through the management agent wherein the management information base comprises:

at least one management object defining a number of addresses for detecting packets requiring domain-specific network address translation; and

a management object defining a domain for said number of addresses; and

wherein the apparatus is operable to map a given local source address to a different one of a plurality of global addresses for each corresponding one of a plurality of destination address domains.

Serial No. 09/667,460
2154

- 6 -

Art Unit:

15. (original) The apparatus of claim 14, wherein the at least one management object comprises:
a first management object defining a beginning address for a range of addresses; and
a second management object defining a prefix length indicating a number of
contiguous bits in an address mask.

16. (original) The apparatus of claim 14, wherein the at least one management object comprises:
a first management object defining a beginning address for a range of addresses; and
a second management object defining an ending address for the range of addresses.

17. (original) The apparatus of claim 14, wherein the at least one management object comprises:
a first management object defining a beginning address for a range of addresses; and
a second management object defining an address range size indicating a number of
addresses in the range of addresses.

18. (original) The apparatus of claim 14, wherein the at least one management object comprises:
a management object for including an individual address in the number of addresses.

19. (original) The apparatus of claim 14, further comprising:
a management object defining a domain-specific translation pool for translating said
packets requiring domain-specific network address translation.

20. (original) The apparatus of claim 19, wherein the domain-specific translation pool is
associated with one of an inbound domain and an outbound domain, and wherein the management
object defining the domain-specific translation pool indicates one of an inbound domain
translation pool and an outbound domain translation pool.

21. (currently amended) An apparatus for multi-domain network address translation, the
apparatus comprising:

Serial No. 09/667,460
2154

- 7 -

Art Unit:

a management agent; and
a management information base accessible through the management agent, wherein the management information base comprises:
at least one management object defining a number of addresses in a the domain-specific translation pool for translating packet requiring domain-specific network address translation; and
a management object defining a domain for said number of addresses; and
wherein the apparatus is operable to map a given local source address to a different one of a plurality of global addresses for each corresponding one of a plurality of destination address domains.

22. (original) The apparatus of claim 21, wherein the at least one management object comprises:
a first management object defining a beginning address for a range of addresses; and
a second management object defining a prefix length indicating a number of contiguous bits in an address mask.

23. (original) The apparatus of claim 21, wherein the at least one management object comprises:
a first management object defining a beginning address for a range of addresses; and a second management object defining an ending address for the range of addresses.

24. (original) The apparatus of claim 21, wherein the at least one management object comprises:
a first management object defining a beginning address for a range of addresses; and
a second management object defining an address range size indicating a number of addresses in the range of addresses.

25. (original) The apparatus of claim 21, wherein the at least one management object comprises a management object for including an individual address in the number of addresses.

26. (currently amended) A management information base for configuring an interface for multi-domain network address translation, the management information base comprising:

Serial No. 09/667,460
2154

- 8 -

Art Unit:

at least one management object defining the interface; and
a management object defining a domain for the interface; and
wherein the management information base is operable to map a given local source address to a different one of a plurality of global addresses for each corresponding one of a plurality of destination address domains.

27. (original) The management information base of claim 26, wherein the at least one management object defining the interface comprises:

a management object defining an address for the interface.

28. (original) The management information base of claim 26, wherein the at least one management object defining the interface comprises:

a management object defining a circuit for the interface.

29. (original) The management information base of claim 26, wherein the at least one management object defining the interface comprises:

a management object defining an interface type for the interface.

30. (original) The management information base of claim 29, wherein the interface type is one of a unidirectional inbound interface type, a unidirectional outbound interface type, and a bi-directional interface type.

31. (currently amended) A management information base for configuring an interface for multi-domain network address translation, the management information base comprising:

~~The management information base of claim 26, comprising:~~

at least one management object defining the interface;

a management object defining a domain for the interface;

a management object (wfNatIfDelete) to create or delete the table entry;

a management object (wfNatIfDisable) to enable or disable the table entry;

Serial No. 09/667,460
2154

- 9 -

Art Unit:

a management object (wfNatIfIpAddress) indicating an address for the interface;
a management object (wfNatIfCircuit) indicating a circuit number for the interface;
a management object (wfNatIfType) indicating an interface type equal to one of
unidirectional inbound, unidirectional outbound, and bi-directional;
a management object (wfNatIfState) indicating an interface state;
a management object (wfNatIfTxCount) indicating a number of packets mapped over the
interface from a local to a global network;
a management object (wfNatIfRxCount) indicating a number of packets mapped over the
interface from a global to a local network ;
a management object (wfNatIfPktDropCount) indicating a number of packets dropped on
the interface; and
a management object (wfNatIfDomain) indicating an address domain for the interface if
the interface is configured as a bi-directional interface.

32. (currently amended) An apparatus for multi-domain network address translation, the
apparatus comprising:

a management agent; and
a management information base accessible through the management agent, wherein the
management information base comprises:
at least one management object defining the interface; ~~and~~
a management object defining a domain for the interface; and
wherein the management information base is operable to map a given local source address
to a different one of a plurality of global addresses for each corresponding one of a plurality of
destination address domains.

33. (original) The apparatus of claim 32, wherein the at least one management object defining the
interface comprises:

a management object defining an address for the interface.

Serial No. 09/667,460
2154

- 10 -

Art Unit:

34. (original) The apparatus of claim 32, wherein the at least one management object defining the interface comprises:

a management object defining a circuit for the interface.

35. (original) The apparatus of claim 32, wherein the at least one management object defining the interface comprises:

a management object defining an interface type for the interface.

36. (original) The apparatus of claim 35, wherein the interface type is one of a unidirectional inbound interface type, a unidirectional outbound interface type, and a bi-directional interface type.

37. (currently amended) An apparatus for multi-domain network address translation, the apparatus comprising: ~~The apparatus of claim 32, wherein the management information base comprises:~~

a management agent; and

a management information base accessible through the management agent, wherein the management information base comprises:

at least one management object defining the interface;

a management object defining a domain for the interface;

a management object (wfNatIfDelete) to create or delete the table entry;

a management object (wfNatIfDisable) to enable or disable the table entry;

a management object (wfNatIfIpAddress) indicating an address for the interface;

a management object (wfNatIfCircuit) indicating a circuit number for the interface;

a management object (wfNatIfType) indicating an interface type equal to one of unidirectional inbound, unidirectional outbound, and bi-directional;

a management object (wfNatIfState) indicating an interface state;

a management object (wfNatIfTxCount) indicating a number of packets mapped over the interface from a local to a global network;

Serial No. 09/667,460
2154

- 11 -

Art Unit:

a management object (wfNatIfRxCount) indicating a number of packets mapped over the interface from a global to a local network ;

a management object (wfNatIfPktDropCount) indicating a number of packets dropped on the interface; and

a management object (wfNatIfDomain) indicating an address domain for the interface if the interface is configured as a bi-directional interface.

38. (currently amended) A management information base for configuring static address translation mappings for multi-domain network address translation, the management information base comprising:

a management object defining an original address;

a management object defining a translation address for the original address;

a management object defining an inbound domain for multi-domain network address translation of the original address; and

a management object defining an outbound domain for multi-domain network address translation of the original address; and

wherein the management information base is operable to map a given local source address to a different one of a plurality of global addresses for each corresponding one of a plurality of destination address domains.

39. (currently amended) A management information base for configuring static address translation mappings for multi-domain network address translation, the management information base comprising:

The management information base of claim 38, comprising:

a management object defining an original address;

a management object defining a translation address for the original address;

a management object defining an inbound domain for multi-domain network address translation of the original address;

Serial No. 09/667,460
2154

- 12 -

Art Unit:

a management object defining an outbound domain for multi-domain network address translation of the original address;

- a management object (wfNatStaticMappingDelete) to create or delete a table entry;
- a management object (wfNatStaticMappingDisable) to enable or disable the table entry;
- a management object (wfNatStaticMappingOrigAddress) indicating an original (untranslated) address for the translation;
- a management object (wfNatStaticMappingTransAddress) indicating a translated address for the translation;
- a management object (wfNatStaticMappingProtocol) indicating a protocol for the translation;
- a management object (wfNatStaticMappingOrigPort) indicating an original port for the translation;
- a management object (wfNatStaticMappingTransPort) indicating a translated port for the translation;
- a management object (wfNatStaticMappingInDomain) indicating the inbound domain for the translation;
- a management object (wfNatStaticMappingOutDomain) indicating the outbound domain for the translation;
- a management object (wfNatStaticMappingStaticNextHop) indicating an address of a next hop for the translation entry; and
- a management object (wfNatStaticMappingUnnumCct) indicating whether the table entry is associated with an unnumbered interface.

40. (currently amended) An apparatus for multi-domain network address translation, the apparatus comprising:

- a management agent; and
- a management information base accessible through the management agent, wherein the management information base comprises:
 - a management object defining an original address;

Serial No. 09/667,460
2154

- 13 -

Art Unit:

a management object defining a translation address for the original address;
a management object defining an inbound domain for multi-domain network address translation of the original address; and
a management object defining an outbound domain for multi-domain network address translation of the original address; and
wherein the management information base is operable to map a given local source address to a different one of a plurality of global addresses for each corresponding one of a plurality of destination address domains.

41. (currently amended) An apparatus for multi-domain network address translation, the apparatus comprising:

~~The management information base of claim 40, wherein the management information base comprises:~~

a management agent; and
a management information base accessible through the management agent, wherein the management information base comprises:
a management object defining an original address;
a management object defining a translation address for the original address;
a management object defining an inbound domain for multi-domain network address translation of the original address;
a management object defining an outbound domain for multi-domain network address translation of the original address;
a management object (wfNatStaticMappingDelete) to create or delete a table entry;
a management object (wfNatStaticMappingDisable) to enable or disable the table entry;
a management object (wfNatStaticMappingOrigAddress) indicating an original (un-translated) address for the translation;
a management object (wfNatStaticMappingTransAddress) indicating a translated address for the translation;

Serial No. 09/667,460
2154

- 14 -

Art Unit:

a management object (wfNatStaticMappingProtocol) indicating a protocol for the translation;

a management object (wfNatStaticMappingOrigPort) indicating an original port for the translation;

a management object (wfNatStaticMappingTransPort) indicating a translated port for the translation;

a management object (wfNatStaticMappingInDomain) indicating the inbound domain for the translation;

a management object (wfNatStaticMappingOutDomain) indicating the outbound domain for the translation;

a management object (wfNatStaticMappingStaticNextHop) indicating an address of a next hop for the translation entry; and

a management object (wfNatStaticMappingUnnumCct) indicating whether the table entry is associated with an unnumbered interface.

42. (currently amended) A management information base for monitoring address translations in a multi-domain network address translator, the management information base comprising:

a management object indicating an original address;

a management object indicating a translation address for the original address;

a management object indicating an inbound domain for multi-domain network address translation of the original address; and

a management object indicating an outbound domain for multi-domain network address translation of the original address; and

wherein the management information base is operable to map a given local source address to a different one of a plurality of global addresses for each corresponding one of a plurality of destination address domains.

43. (currently amended) A management information base for monitoring address translations in a multi-domain network address translator, the management information base comprising:

Serial No. 09/667,460
2154

- 15 -

Art Unit:

~~The management information base of claim 42, comprising:~~

a management object indicating an original address;

a management object indicating a translation address for the original address;

a management object indicating an inbound domain for multi-domain network address translation of the original address;

a management object indicating an outbound domain for multi-domain network address translation of the original address;

a management object (wfNatMappingOrigAddress) an original (un-translated) address of the translation;

a management object (wfNatMappingTransAddress) indicating a translated address of the translation;

a management object (wfNatMappingProtocol) indicating a protocol of the translation;

a management object (wfNatMappingOrigPort) indicating an original port for the translation;

a management object (wfNatMappingTransPort) indicating a translated port for the translation;

a management object (wfNatMappingTxCount) indicating a number of packets forwarded using the translation;

a management object (wfNatMappingRxCount) indicating a number of packets received using the translation;

a management object (wfNatMappingTimeout) indicating an amount of time since the translation was last used;

a management object (wfNatMappingMode) indicating a source of the translation and a type of translation;

a management object (wfNatMappingInDomain) indicating an inbound domain for the translation; and

a management object (wfNatMappingOutDomain) indicating an outbound domain for the translation.

Serial No. 09/667,460
2154

- 16 -

Art Unit:

44. (currently amended) An apparatus for multi-domain network address translation, the apparatus comprising:

a management agent; and

a management information base accessible through the management agent, wherein the management information base comprises:

a management object indicating an original address;

a management object indicating a translation address for the original address;

a management object indicating an inbound domain for multi-domain network address translation of the original address; and

a management object indicating an outbound domain for multi-domain network address translation of the original address; and

wherein the management information base is operable to map a given local source address to a different one of a plurality of global addresses for each corresponding one of a plurality of destination address domains.

45. (currently amended) An apparatus for multi-domain network address translation, the apparatus comprising:

~~The apparatus of claim 44, wherein the management information base comprises:~~

a management agent; and

a management information base accessible through the management agent, wherein the management information base comprises:

a management object indicating an original address;

a management object indicating a translation address for the original address;

a management object indicating an inbound domain for multi-domain network address translation of the original address;

a management object indicating an outbound domain for multi-domain network address translation of the original address;

a management object (wfNatMappingOrigAddress) an original (un-translated) address of the translation;

Serial No. 09/667,460
2154

- 17 -

Art Unit:

a management object (wfNatMappingTransAddress) indicating a translated address of the translation;

a management object (wfNatMappingProtocol) indicating a protocol of the translation;

a management object (wfNatMappingOrigPort) indicating an original port for the translation;

a management object (wfNatMappingTransPort) indicating a translated port for the translation;

a management object (wfNatMappingTxCount) indicating a number of packets forwarded using the translation;

a management object (wfNatMappingRxCount) indicating a number of packets received using the translation;

a management object (wfNatMappingTimeout) indicating an amount of time since the translation was last used;

a management object (wfNatMappingMode) indicating a source of the translation and a type of translation;

a management object (wfNatMappingInDomain) indicating an inbound domain for the translation; and

a management object (wfNatMappingOutDomain) indicating an outbound domain for the translation.